

Appln. No. 08/964,180
Response dated October 20, 2004
Reply to Office Action of April 21, 2004

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The April 21, 2004 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended and remarks are set forth below in a sincere effort to place the application in form for allowance. The amendments are supported by the application as originally filed. Therefore no new matter is added.

CLAIM OBJECTIONS

In the Office Action, claims 2, 14, 22, and 30-34 are objected to as containing certain informalities. In response, claims 2, 14, 22 and 30-34 have been amended as requested by the Examiner. In view of the amendments of claims 2, 14, 22 and 30-34, reconsideration and withdrawal of the objection to these claims are respectfully requested.

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PRIOR ART REJECTIONS

In the Office Action, claims 2, 10, 14, 20, 22 and 28-34 are rejected under 35 USC 102(b) as being anticipated by JP 8-32847 (Ueno et al.).

The present claimed invention as defined by independent claim 2 is directed to an image processing apparatus which calculates correction parameters based on a plurality of images input from the image input means. In contrast, JP 8-32847 (Ueno et al.) teaches setting the aperture value (assuming that the operative value is the correction parameter) of the bracket exposure before image pickup, and that the correction parameter is not calculated by using a plurality of images which have been input.

In the present claimed invention, an image is obtained by synthesizing (adding) a plurality of images using a calculated correction parameter. In contrast, in Ueno et al., an image is obtained by selecting partial regions having a brightness close to the brightness which has been set from bright regions and dark regions (a partial region of the above divided images), and combining (pasting) the selected partial regions together. As a

result, the method taught in Ueno et al. is completely different from the apparatus of the present invention.

Ueno et al. do not disclose, teach or suggest correction parameter calculating means for determining correction parameters between the plurality of images based on the plurality of images input from the image input means (see claim 2, lines 6-9).

Even if the "aperture value" and the "set aperture value display section 65" of Ueno et al. correspond to the "correction parameter" and "correction parameter calculating means" of the present claimed invention, the "aperture value" of Ueno et al. is set before the image pickup. Thus, it is impossible to calculate the "correction parameter" from a plurality of images which have been picked up as in the present claimed invention.

Ueno et al. also do not disclose, teach or suggest wherein the correction parameter calculating means comprises image display means (corresponding to 44 of Fig. 15) for displaying the plurality of images input from the image input means; correction parameter setting means (corresponding to 63 of Fig. 15) for adjusting the correction parameters determined by the correction parameter calculating means, while differences in brightness between the plurality of images displayed by the image display means are being checked by a user; brightness correcting means

(corresponding to 62 of Fig. 15) for correcting the brightness of said at least one image in accordance with the correction parameters (R_{exp}) adjusted by the correction parameter setting means.

In "the set aperture value display section 65 displaying the aperture value which has been set" and "the aperture changing display section 66 for changing the aperture value" shown in Fig. 10 of Ueno et al., "the aperture changing display section 66" is adjusted and the aperture value is set to "4.0" in the setting of the pickup conditions carried out before pickup of the image. As a result, the aperture value "4.0" is displayed in the "the set aperture value display section 65," and it is impossible to change the brightness of the image after pickup of the image even by adjusting "the aperture changing display section 66."

In contrast, in the present claimed invention, it is possible to correct the brightness of an image b by adjusting the knob displayed on the screen of Fig. 17. When the adjustment ends at the point the brightness of the image b is the same as the brightness of the reference image a, the exposure time ratio R_{exp} can be obtained as a correction parameter.

Ueno et al. also do not disclose image synthesizing means for synthesizing the plurality of images including said at least

one image, the brightness of which is corrected by the brightness correcting means.

The synthesized image obtained in the "exposure synthesizing mode" of Ueno et al. obtains an image by selecting the partial region of the subject having a brightness close to the set brightness from a plurality of picked up images (four images in the embodiment) with different exposures, and combining (pasting) the images. On the other hand, in the synthesized image obtained by "image synthesizing means" of the present claimed invention, "pasting" is not carried out. That is, a plurality of picked up images (two images in the embodiment) with different exposures are synthesized (added), and then a synthesized image is obtained by calculating the value corresponding to the R, G and B value of the incident light during image pickup using the above "correction parameter," and processing the images in the matrix circuit 23 (Fig. 22). In Ueno et al., a "correction parameter" is not used when obtaining a combined image. In Ueno et al., an edge detecting process is carried out on the plurality of picked up images with different exposures and the regions of each of the images are divided into a bright region and a dark region, to carry out "pasting." In the present invention, it is unnecessary to divide the regions in such a way as taught in Ueno et al.

That is, the present claimed invention as defined by independent claim 2 is patentable over Ueno et al. because the reference does not disclose, teach or suggest:

correction parameter calculating means for determining correction parameters between the plurality of images based on the plurality of images input from the image input means; wherein the correction parameter calculating means includes:

image display means for displaying the plurality of images input from the image input means;

correction parameter setting means for adjusting the correction parameters determined by the correction parameter calculating means, while differences in brightness between the plurality of images displayed by the image display means are being checked by a user; and

brightness correcting means for correcting the brightness of at least one image in accordance with the correction parameters adjusted by the correction parameter setting means; and

image synthesizing means for synthesizing the plurality of images including said at least one image, the brightness of which is corrected by the brightness correcting means (see claim 2, lines 6-24).

None of the other references of record close the gap between the present claimed invention as defined by claim 2 and Ueno et al. Therefore, claim 2 is patentable over Ueno et al. and the other references of record under 35 USC 102 as well as 35 USC 103.

Claims 10 and 29 are dependent on claim 2 and are patentable over the cited references in view of their dependence on claim 2

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and because the references do not disclose, teach or suggest each of the limitations set forth in claims 10 and 29.

Claim 14 recites an image processing method corresponding to claim 2, claim 22 recites a recording medium claim corresponding to claim 2 and claim 30 recites an apparatus claim which corresponds to claim 2 but which is not in means-plus-function format. Claims 14, 22 and 30 are patentable over the references of record for reasons, inter alia, set forth above in connection with claim 2.

Claims 20 and 33 are dependent on claim 14, claims 28 and 34 are dependent on claim 22, and claims 31 and 32 are dependent on claim 30. The dependent claims are patentable over the cited references in view of their dependence on claims 14, 22 or 30, and because the references of record do not disclose, teach or suggest each of the limitations set forth in claims 20, 28, 29 and 31-34.

In view of all of the foregoing, claims 2, 10, 14, 20, 22 and 28-34 are in form for immediate allowance, which action is earnestly solicited.

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If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

Entry of this Amendment, allowance of the claims, and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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Encl.: Petition for Extension of Time